Published in final edited form as:

Epidemiology. 2017 November ; 28(6): 847–853. doi:10.1097/EDE.0000000000000728.

The Accuracy of Self-Reported Weight in a Diverse Population-Based Sample of Hispanic/Latino Adults from Four Urban United States Communities: the Hispanic Community Health Study/Study of Latinos (HCHS/SOL)

Lindsay Fernández-Rhodes^{1,*}, Whitney R. Robinson¹, Daniela Sotres-Alvarez², Nora Franceschini¹, Sheila F. Castañeda³, Christina Buelna³, Ashley Moncrieff⁴, Maria Llabre⁴, Martha L. Daviglus⁵, Qibin Qi⁶, Anita Agarwal^{6,7}, Carmen R. Isasi⁶, Paul Smokowski^{8,9}, Penny Gordon-Larsen¹⁰, and Kari E. North^{1,11}

¹Department of Epidemiology, University of North Carolina at Chapel Hill, NC

²Collaborative Studies Coordinating Center, Department of Biostatistics, University of North Carolina at Chapel Hill, NC

³San Diego State University, San Diego, CA

⁴University of Miami, Miami, FL

⁵University of Illinois at Chicago, Chicago, IL

⁶Albert Einstein College of Medicine, Bronx, NY

⁷Jacobi Medical Center, Bronx, NY

⁸School of Social Work, University of North Carolina at Chapel Hill, NC

⁹School of Social Welfare, The University of Kansas, Lawrence, KS

¹⁰Department of Nutrition, University of North Carolina at Chapel Hill, NC

¹¹Carolina Center for Genome Sciences, Department of Epidemiology, University of North Carolina at Chapel Hill, NC

Abstract

Background—Previous United States (U.S.) population-based studies have found that body weight may be underestimated when self-reported. However, this research may not apply to all U.S. Hispanics/Latinos, many of whom are immigrants with distinct cultural orientations to ideal body size. We assessed the data quality and accuracy of self-reported weight in a diverse community-based U.S. sample of primarily foreign-born Hispanics/Latino adults.

Methods—Using baseline data (2008–2011) from the Hispanic Community Health Study/Study of Latinos (HCHS/SOL), we described the difference between contemporaneous self-reported and

*Corresponding Author: Lindsay Fernández-Rhodes, 137 East Franklin St., Suite 306, Chapel Hill, NC 27599-8050, 919-260-4855, fernandez-rhodes@unc.edu.

Conflict of Interest: The authors have no conflicts of interest to disclose.

measured current body weight (n=16,119) and used multivariate adjusted models to establish whether the observed trends in misreporting in potential predictors of inaccuracy persisted after adjustment for other predictors. Lastly, we described the weighted percentage agreement in body mass classification using either self-reported or measured weight (n=16,110).

Results—Self-reported weight was well correlated with ($r^2=0.95$) and on average 0.23 kg greater than measured weight. The range of this misreporting was large and several factors were associated with misreporting: age group, gender, body mass categories, nativity, study site by background, unit of self-report (kg or lb), and end digit preference. The percentage agreement of body mass classification using self-reported versus measured weight was 86% and varied across prevalent health conditions.

Conclusions—The direction of misreporting in self-reported weight, and thus the anticipated bias in obesity prevalence estimates based on self-reported weights, may differ in U.S. Hispanic/Latinos from that found in prior studies. Future investigations using self-reported body weight in U.S. Hispanic/Latinos should consider this information for bias analyses.

Background

Despite the potential for misreporting, self-reported body weight is often used when measured weight is unavailable.¹ Previous population-based studies of the accuracy of self-reported weight indicate that participants on average under-report weight by 0.1 kg² to 1.2 kg^{3,4} and with differential misreporting across factors such as age, gender, and body mass index (BMI) categories.¹ Yet a population-based study of Mexican adults observed average over-reporting of 0.6 kg,⁵ indicating that the direction of misreporting may vary across cultures due to the social desirability of body weight.^{6,7}

U.S. Hispanic/Latinos represented 17% of the adult population in 2013⁸ and at least half were born outside of the United States (U.S.).⁹ BMI categories,^{10–12} age,^{5,11–14} gender,^{5,12} reproductive factors,¹⁵ household income,¹² education, employment and nativity¹¹ have been described as predictors of weight misreporting in Hispanic/Latinos. Although U.S. Hispanic/Latinos are a diverse ethnic group and may have variable perceptions towards ideal body size¹⁶, to our knowledge no previous population-based study has described the accuracy of self-reported weight relative to measured weight across more than one Hispanic/Latino background (or heritage). Herein we describe the accuracy of self-reported body weight and predictors of misreporting in a predominantly foreign-born population-based sample of U.S. Hispanic/Latino adults of various backgrounds participating in the Hispanic Community Health Study/Study of Latinos (HCHS/SOL).

Methods

Population

The HCHS/SOL is a community-based sample of 16,415 adults (18–76 years) of diverse backgrounds (Central or South American, Cuban, Dominican, Mexican, and Puerto Rican) living in four U.S. communities (Bronx, NY; Chicago, IL; Miami, FL; San Diego, CA) between 2008–2011.^{17,18} Institutional Review Boards at all sites approved the study procedures. All participants gave their informed written consent.

Height and Weight Measures

The baseline HCHS/SOL anthropometrics were collected during the fasting procedural block¹⁸ on participants, who were able to stand on both feet in an examination gown and without shoes.¹⁹ Study personnel measured standing height and asked participants to self-report weight (kg, lb) before measuring their weight (kg).¹⁹ We created two separate BMI values by scaling each weight (self-reported or measured) by the measured current height squared (kg/m^2).

Aspects of data quality control are described in detail in the Supplemental Text on Data Quality Control in the Supplemental Digital Content (SDC) 1. Unless indicated otherwise, all results presented below pertain to the sample with both self-reported and measured weight that remained after applying our staged quality control protocol (see eFigure 1 and eTable 1 in SDC 1).

Analysis

First, we stratified self-reported and measured weights by end digit and compared the observed frequency with the expected frequency of 10% (i.e. uniform distribution of digits between 0–9). The Rao-Scott Chi-square was used to calculate End Digit Preference Scores (DPS)²⁰, a measure of digit heterogeneity ($\text{DPS} > 20$). Second, we calculated the difference between self-report and measured weight, the percent difference $[(\text{self-reported} - \text{measured}) / \text{measured weight} * 100\%]$ relative to measured weight as our “gold standard”, and then stratified differences by potential predictors of misreporting, including demographics (age, site, Hispanic/Latino background, gender), health statuses (BMI categories, health insurance, smoking status, diabetes, history of cancer/malignant tumor or heart failure, menopausal status), socioeconomic/sociocultural factors (education, household income, language preference at examination, nativity), and self-report characteristics (unit, end digit preference). Not all Hispanic/Latino backgrounds were represented at each site. Therefore, we pooled backgrounds with <100 participants per site with ‘Mixed/Other’, and created a cross-classification of site by background.

Third, as done previously^{5,21–23} we used an unadjusted linear regression of measured weight on self-reported weight to estimate the overall correlation using an *a priori* criteria of good model fit of $r^2 > 0.9$. Given the potential for differential sources misreporting of weight, we also applied multivariate linear models to assess the joint influence of potential predictors of inaccuracy on the differences between self-report and measured weights and represent the absolute difference in misreporting (kg) between a given stratum compared to the referent after holding all other potential predictors constant—a henceforth called ‘difference in misreporting.’ Fourth, to inform future bias analyses, we describe the weighted counts and frequency distribution of BMI categories (based on measured current height) using either self-reported or measured weights.

In addition to complete case analyses, we used multiple imputation²⁴ to fill in missing predictor information (8.5% of the sample missing 1 predictors, 25 datasets, after 20 burn-in). All statistical analyses accounted for the complex sampling design of HCHS/SOL in SAS 9.4 (SAS Institute, Research Triangle Park, NC).

Results

Unit and End Digit Preference

The majority of HCHS/SOL participants self-reported their body weight in lb (96%). However, this varied across the four study sites (e.g. 89% in San Diego, 99% in the Bronx). Over half of the participants (56%) self-reported weights ending in zero or five. End digit preference was evident for self-reported weights (DPS=23), but was stronger for self-reports ending in zeros (DPS=62) and self-reports in lb (see eFigures 2–3 in SDC 2).

Mean Difference in Self-Reported and Measured Weight

Following a staged data quality control protocol to resolve potential data errors (see eFigure 1 and eTable 1 in SDC 1), the cleaned calculated differences ranged from 52.8 kg under to 35.4 kg over-reporting. As shown in Figure 1A–D, this data cleaning tightened the correlation between self-reported and measured weight ($r^2=0.95$), attenuated the mean difference (0.23 kg), increased its precision (95% CI: 0.12, 0.34; CLD: 0.22 kg), and made trends in differential misreporting across measured weight (and across BMI categories; Figure 2A–D) more evident. The difference in self-reported and measured weight as a percentage of measured weight was on average 0.53% (95% CI: 0.40%, 0.66%), and the majority of the self-reported and measured weight data lied along unity (see eFigure 4A–B in SDC 2). Based on these findings all subsequent analyses were conducted using the quality-controlled data.

Predictors of Misreporting

The magnitude and direction of weighted mean differences in self-reported and measured weight varied across strata of a number of potential predictors of inaccuracy including age, BMI categories, nativity, site by background, unit and end digit preference. These descriptive trends and multivariate results were similar using both the complete case and multiply imputed datasets (see Table 1 and eTables 2–3 in SDC 2). Therefore, we focus on the multiply imputed multivariate results below, providing summaries of the resulting covariance matrices (see eTable 4 in SDC 3).

Briefly, there was a positive relationship between increasing age categories and weight over-reporting, and females tended to over-report their weight less than males (Table 1). Central and South Americans from the Bronx (weighted obesity prevalence: 41% and 36%, respectively) under-reported, but Central and South Americans from Miami (38% and 29%) over-reported their weights (see eTable 2 in SDC 2; eFigure 5 in SDC 4). We also observed differential patterns of under-reporting among the Hispanic/Latino backgrounds [e.g. Mexican (43% obese) and Puerto Rican (48%), compared to Central American (41%)] at the Bronx, the site with the highest prevalence of obesity (43% versus 37–41%), after accounting for all other predictors (Figure 3).

The strongest predictor of misreporting in HCHS/SOL was individual's BMI category. Underweight individuals were more likely to over-report weight as compared to normal-weight individuals. In contrast over-weight and obese individuals were more likely to under-report weight. U.S.-born adults under-reported weight more than the foreign-born, and

individuals reporting in kg or in zeros and fives under-reported their weight more as compared to those using lb, or other end digits (Table 1).

Body Mass Categorizations

The weighted percent of agreement in BMI classification, scaling either self-reported or measured weight by measured current height, was 86%, but this agreement decreased to 82% when three classes of obesity were used (see eTables 5–6 in SDC 5). The observed agreement of BMI categories varied across prevalent health conditions considered to be potential predictors of inaccuracy (e.g. 83% in individuals with a cancer history to 90% in diabetics; see eTables 7–10 in SDC 5).

Discussion

Given the growth and diverse origins of the U.S. Hispanic/Latinos, there is a need to reassess the accuracy of self-reported weight as a commonly used proxy of measured weight. To our knowledge this study is the first accuracy study of self-reported weight in a large population-based sample from multiple study sites and of multiple Hispanic/Latino backgrounds—each with unique cultural, linguistic, and migration histories. Using more than 16,000 observations, we describe a good correlation between self-reported and measured weight and agreement in resulting BMI categories ($r^2=0.95$, 86%), in spite of a wide range of misreporting. On average slight over-reporting of weight (0.2 kg) was less than previous estimates of adult diurnal weight variability—up to 2 kg (4.4 lb).²⁵ These observations are consistent with previous good correlations ($r^2>0.9$)^{21–23} as well as a wide range of misreporting resulting in over-reporting in a nationally-representative sample of Mexican citizens (0.6 kg).⁵ The extreme range of misreporting in our large sample may reflect the heterogeneity in determinants of misreporting in diverse Hispanic/Latinos, which we explored in multivariate regression modeling and in contingency tables.

Nonetheless findings from previous studies^{15,21,26} of Hispanic/Latinos supported the expectation of under-reporting of weight in this study. In HCHS/SOL the slight mean over-reporting of weight may reflect its size or study design (e.g. timing of the assessment following a urine collection and clothing change, or the participants' desire to be precise in anticipation of their weight measurement¹⁸). Additionally previous national estimates of predominantly Mexican-descent, US-born¹¹ Hispanic/Latino adults indicate that the magnitude of under-reporting is less in Hispanic/Latinos than in non-Hispanic/Latino Whites (−0.35 versus −0.75 kg).²⁶ In contrast, HCHS/SOL predominantly is comprised of non-Mexican backgrounds and foreign-born adults. Thus the directional inconsistency of our findings may also be explained by the complex influence of cultural factors^{6,7} and acculturation¹⁶ on body image (i.e. HCHS/SOL U.S.-born participants under-reported and foreign-born participants over-reported weight). For example, U.S. Hispanic/Latinas have voiced a perception that their culture of origin prefers a full figure due to its connection with “wealth, affluence, and tranquility”⁶; whereas in the U.S. women are expected to be “extremely thin”.⁷ We noted that sensitivity of self-report generally increased as the category of BMI increased (e.g. 40% of underweight, versus 83% of overweight or 77% of class II

obesity; see eTables 5–6 in SDC 5), which could either reflect more cardiovascular comorbidities requiring regular health checkups or a cultural bias against being underweight.

Our diverse accuracy study of self-reported weight of more than 16,000 U.S. Hispanics/Latino adults is further strengthened by rigorous data quality control, which increased precision and revealed a clearer pattern of differential misreporting across measured weights (Figure 1C–D). In our validity study, we provide several estimates of self-report bias in weight to increase the future utility in bias analyses. Although 80% of participants completed the interview in Spanish, only 4% reported weight in kg, which could be a reflection of the routine weight monitoring (in lb) of the U.S. medical system (e.g. 65% of individuals reporting in kg without health insurance, 48% reporting in lb without insurance). Self-reports that were made in kg were more accurate than those made in lb, indicating that the accommodation of multiple units may increase accuracy in future studies of U.S. Hispanic/Latinos.

Nonetheless in this study we were unable to compare measured BMI categories to those based off of both self-reported weight and height, as measured current height was not measured in HCHS/SOL. Additionally, there is an inherent confounding by study site in HCHS/SOL, which required a cross-classification of site by background. Within the Bronx there was more over-reporting of weight by Mexicans and Puerto Ricans, as compared to Central Americans (Figure 3). Overall there was a greater preference for reporting in lb at the Bronx (99%), a greater prevalence of obesity, and less over-reporting in the Bronx compared to other sites for several backgrounds (see eFigure 5 in SDC 2). Future studies should examine if there is something unique about the cultural, migratory or acculturative experiences of immigrants and their families living in the Bronx, which may lead some Hispanic/Latino adults (including those not born in Puerto Rico, where lb is a common unit of measurement) to more closely reflect a US-oriented cultural bias towards lower weight. Herein we were only able to assess a few factors, which might lead to weight fluctuations in adulthood or frequent doctor visits (e.g. diabetes, heart failure, smoking, cancer), and then stratify the agreement of BMI categorizations based on self-reported and measured weights. Lastly, the characteristics of the Hispanic/Latino population living in the US are constantly changing⁹ and thus extrapolation of our findings beyond the four communities of HCHS/SOL or to future observational samples should be done cautiously.

In population-based sample from four U.S. urban communities we great variability in misreporting resulting in slight over-reporting of weight, on average, that was associated with demographics, health statuses and self-report preferences. Future studies of self-reported weight in U.S. Hispanic/Latinos or other immigrant populations should accommodate diverse language/unit preferences, consider the potential for a distinct social desirability towards weight, and explore the biases introduced by using self-reports.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

Financial Support: LFR was supported by the Cardiovascular Disease Epidemiology Training Grant from the National Heart, Lung, and Blood Institute (T32HL007055) and the American Heart Association (AHA) predoctoral grant (13PRE16100015). KEN was supported by R01-DK089256; 2R01HD057194; U01HG007416; R01DK101855, and AHA grant 13GRNT16490017.

The Hispanic Community Health Study/Study of Latinos was carried out as a collaborative study supported by contracts from the National Heart, Lung, and Blood Institute (NHLBI) to the University of North Carolina (N01-HC65233), University of Miami (N01-HC65234), Albert Einstein College of Medicine (N01-HC65235), Northwestern University (N01-HC65236), and San Diego State University (N01-HC65237). The following Institutes/Centers/Offices contribute to the HCHS/SOL through a transfer of funds to the NHLBI: National Institute on Minority Health and Health Disparities, National Institute on Deafness and Other Communication Disorders, National Institute of Dental and Craniofacial Research, National Institute of Diabetes and Digestive and Kidney Diseases, National Institute of Neurological Disorders and Stroke, NIH Institution-Office of Dietary Supplements.

The authors thank the staff and participants of HCHS/SOL for their important contributions. The investigators website can be found here: <http://www.cscc.unc.edu/hchs/>

References

1. Connor Gorber S, Tremblay M, Moher D, Gorber B. A comparison of direct vs. self-report measures for assessing height, weight and body mass index: a systematic review. *Obes Rev.* 2007; 8(4):307–26. [PubMed: 17578381]
2. Schmidt MI, Duncan BB, Tavares M, Polanczyk CA, Pellanda L, Zimmer PM. Validity of self-reported weight--a study of urban Brazilian adults. *Rev Saude Publica.* 1993; 27(4):271–6. [PubMed: 8209159]
3. Stunkard AJ, Albaum JM. The accuracy of self-reported weights. *Am J Clin Nutr.* 1981; 34(8):1593–9. [PubMed: 7270483]
4. Bostrom G, Diderichsen F. Socioeconomic differentials in misclassification of height, weight and body mass index based on questionnaire data. *Int J Epidemiol.* 1997; 26(4):860–6. [PubMed: 9279620]
5. Avila-Funes JA, Gutierrez-Robledo LM, Ponce De Leon Rosales S. Validity of height and weight self-report in Mexican adults: results from the national health and aging study. *J Nutr Health Aging.* 2004; 8(5):355–61. [PubMed: 15359352]
6. Weitzman PF, Caballero AE, Millan-Ferro A, Becker AE, Levkoff SE. Bodily Aesthetic Ideals Among Latinas With Type 2 Diabetes Implications for Treatment Adherence, Access, and Outcomes. *Diabetes Educator.* 2013; 39(6):856–863. [PubMed: 24096804]
7. Lindberg NM, Stevens VJ. Immigration and Weight Gain: Mexican-American Women's Perspectives. *Journal of Immigrant and Minority Health.* 2011; 13(1):155–160. [PubMed: 19859807]
8. U.S. Census Bureau PD. Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for the United States, States, and Counties: April 1, 2010 to July 1, 2012. 2013.
9. Hispanic Nativity Shift. Washington, DC: The Pew Research Center; 2014.
10. Field AE, Aneja P, Rosner B. The validity of self-reported weight change among adolescents and young adults. *Obesity.* 2007; 15(9):2357–2364. [PubMed: 17890505]
11. Lee SK. Validity of self-reported weight and height: comparison between immigrant and non-immigrant Mexican Americans in NHANES III. *J Immigr Health.* 2005; 7(2):127–31. [PubMed: 15789165]
12. Merrill RM, Richardson JS. Validity of self-reported height, weight, and body mass index: findings from the National Health and Nutrition Examination Survey, 2001–2006. *Prev Chronic Dis.* 2009; 6(4):A121. [PubMed: 19754997]
13. Kuczmarski MF, Kuczmarski RJ, Najjar M. Effects of age on validity of self-reported height, weight, and body mass index: findings from the Third National Health and Nutrition Examination Survey, 1988–1994. *J Am Diet Assoc.* 2001; 101(1):28–34. quiz 35–6. [PubMed: 11209581]

14. Gillum RF, Sempos CT. Ethnic variation in validity of classification of overweight and obesity using self-reported weight and height in American women and men: the Third National Health and Nutrition Examination Survey. *Nutr J*. 2005; 4:27. [PubMed: 16209706]
15. Griebeler ML, Levis S, Beringer LM, Chacra W, Gomez-Marin O. Self-reported versus measured height and weight in Hispanic and non-Hispanic menopausal women. *J Womens Health (Larchmt)*. 2011; 20(4):599–604. [PubMed: 21413893]
16. MossavarRahmani Y, Peltó GH, Ferris AM, Allen LH. Determinants of body size perceptions and dieting behavior in a multiethnic group of hospital staff women. *J Am Diet Assoc*. 1996; 96(3): 252–256. [PubMed: 8613659]
17. Lavange LM, Kalsbeek WD, Sorlie PD, Aviles-Santa LM, Kaplan RC, Barnhart J, Liu K, Giachello A, Lee DJ, Ryan J, Criqui MH, Elder JP. Sample design and cohort selection in the Hispanic Community Health Study/Study of Latinos. *Ann Epidemiol*. 2010; 20(8):642–9. [PubMed: 20609344]
18. Sorlie PD, Aviles-Santa LM, Wassertheil-Smoller S, Kaplan RC, Daviglus ML, Giachello AL, Schneiderman N, Raij L, Talavera G, Allison M, Lavange L, Chambless LE, Heiss G. Design and implementation of the Hispanic Community Health Study/Study of Latinos. *Ann Epidemiol*. 2010; 20(8):629–41. [PubMed: 20609343]
19. Kaplan RC, Aviles-Santa L, Parrinello CM, Hanna DB, Jung M, Castaneda SF, Hankinson AL, Isasi CR, Birnbaum-Weitzman O, Kim RS, Daviglus ML, Talavera GA, Schneiderman N, Cai JW. Body Mass Index, Sex, and Cardiovascular Disease Risk Factors Among Hispanic/Latino Adults: Hispanic Community Health Study/Study of Latinos. *Journal of the American Heart Association*. 2014; 3(4)
20. Kuulasmaa K, Hense HW, Tolonen H. Quality Assessment of Data on Blood Pressure in the WHO MONICA Project. WHO MONICA Project e-publications. 1998
21. Maupin JN, Hruschka DJ. Assessing the accuracy of two proxy measures for BMI in a semi-rural, low-resource setting in Guatemala. *BMC Public Health*. 2014;14. [PubMed: 24400816]
22. Alvarez-Torices JC, Franch-Nadal J, Alvarez-Guisasola F, Hernandez-Mejia R, Cueto-Espinar A. Self-reported height and weight and prevalence of obesity. Study in a Spanish population. *Int J Obes Relat Metab Disord*. 1993; 17(11):663–7. [PubMed: 8281225]
23. McAdams MA, Van Dam RM, Hu FB. Comparison of self-reported and measured BMI as correlates of disease markers in US adults. *Obesity (Silver Spring)*. 2007; 15(1):188–96. [PubMed: 17228047]
24. Yuan Y. Multiple Imputation Using SAS Software. *Journal of Statistical Software*. 2011; 45(6):1–25.
25. Stevens J, Truesdale KP, McClain JE, Cai J. The definition of weight maintenance. *Int J Obes (Lond)*. 2006; 30(3):391–9. [PubMed: 16302013]
26. Wen M, Kowaleski-Jones L. Sex and ethnic differences in validity of self-reported adult height, weight and body mass index. *Ethn Dis*. 2012; 22(1):72–8. [PubMed: 22774312]

Figure 1.

A–D. Change in scatterplots of self-reported (SR) weight (Panel A and B, unity shown by gray line) and the difference between SR and measured (M) weight as a function of M weight (Panel C and D, mean difference and ± 4 standard deviations shown by gray lines; 129 versus 137 observations beyond 4 standard deviations from the mean, respectively) in raw (Panels A,C; $n=16,203$ observations in black) and quality controlled datasets (Panels B,D; $n=16,119$ observations in black and recoded values in gray).

Figure 2.

A–D. Difference between 16,119 SR and measured (M) weight (overall mean difference and ± 4 standard deviations shown by gray lines; recoded values shown in by gray dots) as a function of M weight as shown by categories of measured BMI (underweight, normal, overweight, and obese).

Figure 3.

Multivariate estimated differences in misreporting (defined as the difference between self-reported and measured weights) and 95% confidence intervals comparing the seven Hispanic/Latino backgrounds (CA=Central Americans, referent for all sites but San Diego; C=Cubans; D=Dominicans; M=Mexicans, referent for San Diego; PR=Puerto Ricans; SA=South Americans; O=Other) within the study sites (The Bronx, NY; Chicago, IL; Miami, FL; San Diego, CA; 100 participants of a given background per site).

Table 1

Regression beta coefficients of predictors of accuracy of self-reported weight as compared to measured weight^a (kg) in Hispanic/Latino adults 18–76 years of age in HCHS/SOL (2008–2011) (total n=16,119, in each of the multiply imputations^b).

		β_{SR-M}	SE	95% CI
Age (years)	18–22	0 (ref)		
	23–29	0.20	0.24	−0.27, 0.67
	30–44	0.48	0.20	0.08, 0.88
	45–59	0.76	0.20	0.37, 1.14
	60–76	0.82	0.24	0.36, 1.29
Background by Site	Dominicans- Bronx	0 (ref)		
	Central American- Bronx	−0.32	0.29	−0.88, 0.24
	Central American- Chicago	0.97	0.26	0.45, 1.48
	Central American- Miami	1.10	0.24	0.63, 1.57
	Cubans- Miami	1.01	0.19	0.64, 1.38
	Mexicans- Bronx	0.81	0.45	−0.07, 1.69
	Mexicans- Chicago	1.15	0.20	0.75, 1.54
	Mexican- San Diego	1.49	0.22	1.07, 1.91
	Puerto Ricans- Bronx	0.42	0.26	−0.09, 0.92
	Puerto Ricans- Chicago	0.61	0.32	−0.02, 1.24
	South American- Bronx	−0.07	0.33	−0.73, 0.58
	South American- Chicago	0.80	0.28	0.24, 1.35
	South American- Miami	1.00	0.29	0.44, 1.56
	Other- Bronx	−0.12	0.43	−0.96, 0.72
	Other- Chicago	0.33	0.52	−0.68, 1.34
	Other- Miami	1.16	0.39	0.40, 1.92
	Other- San Diego	1.58	0.41	0.79, 2.38
Measured Body Mass Index Categories^c	Underweight (<18.5 kg/m ²)	1.88	0.41	1.07, 2.69
	Normal Weight (18.5–24.9 kg/m ²)	0 (ref)		
	Overweight (25.0–29.9 kg/m ²)	−0.75	0.10	−0.95, −0.56
	Obese (≥ 30.0 kg/m ²)	−1.78	0.13	−2.04, −1.52
Cancer History	Yes	−0.11	0.35	−0.79, 0.57
	No	0 (ref)		
Diabetic Status^d	Normal Glucose Regulation	0 (ref)		
	Impaired Glucose Tolerance	−0.18	0.12	−0.42, 0.05
	Diabetes	0.17	0.16	−0.13, 0.48
Education	Less than high school or a GED	0.01	0.13	−0.23, 0.26
	At most high school or a GED	−0.10	0.12	−0.33, 0.13
	More than high school or a GED	0 (ref)		

		$\beta_{\text{SR-M}}$	SE	95% CI
End Digit Preference	5 or 10	−0.84	0.09	−1.02, −0.66
	1–4, 6–9	0 (ref)		
Gender	Female, pre-, peri-menopausal ^e	−0.35	0.13	−0.60, −0.10
	Female, post-menopausal	−0.43	0.13	−0.69, 0.17
	Male	0 (ref)		
Heart Failure History	Yes	0.12	0.35	−0.56, 0.80
	No	0 (ref)		
Health Insurance	Yes	0.09	0.12	−0.14, 0.33
	No	0 (ref)		
Language Preference	English	0.30	0.18	−0.06, 0.66
	Spanish	0 (ref)		
Nativity	Born in the United States ^f	−0.31	0.20	−0.69, 0.08
	Foreign Born	0 (ref)		
Physical Activity Level^g	Inactive	0.03	0.12	−0.22, 0.27
	Low Activity	0.03	0.13	−0.23, 0.29
	Medium Activity	0.29	0.16	−0.02, 0.60
	High Activity	0 (ref)		
Smoking Status	Never	0 (ref)		
	Former	0.24	0.14	−0.03, 0.51
	Current	0.13	0.13	−0.13, 0.38
Socioeconomic Status	Less than \$30,000 USD	0.14	0.10	−0.06, 0.35
	\$30,000 or more USD	0 (ref)		
Unit of Self-Report	Kg	−1.09	0.30	−1.67, −0.51
	Lb	0 (ref)		

Abbreviations: CI=Confidence interval, GED=General Education Development Equivalent of a High School Diploma, M=Measured weight, ref=Referent, SE=Standard error, SR=Self-reported weight, USD=United States Dollars.

^aDifference=self-reported minus measured weight (kg). Multivariate difference was calculated from a multivariate linear regression model of mean difference on the above possible determinants of validity (independent variables).

^bThe range of sample sizes in each category across the 25 imputations is shown in eTable 2 in Supplemental Digital Content 2.

^cMeasured body mass index was calculated from measured current weight and height.

^dAs defined by the American Diabetes Association (*Diabetes Care* 2010;33:S62–69)).

^eWomen reporting not reporting ‘yes’ to having reached menopause (change of life) were assumed to be pre- or peri-menopausal.

^fAs defined as being born in one of the 50 United States, not including United States Territories such as Puerto Rico.

^gAs defined in the 2008 Physical Activity Guidelines for adults (<http://www.health.gov/paguidelines/guidelines/default.aspx>).